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EXPLORING HOST-GUEST INTERACTION ON AIRBNB

Investigando a Interação Anfitrião-Convidado no Airbnb

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ABSTRACT

This study aims to examine the reviews of guests who had Airbnb experience in Mexico City, Athens, and Tokyo in terms of host-guest interaction. In this way, we intend to interpret guest's experience, satisfaction, recommend and revisit intention phenomenon in terms of depth and breadth of host's sincerity. We adopt an interpretive approach and a mixed method. That is, the study combines topic extracting technic by employing online secondary big data and explicating emerging themes and patterns. The paper highlights firstly sincerity of communication in sentences with host name emphasized. On the other hand, the host's responsive and communicative nature improves friendliness over time, which affects experience, satisfaction, recommend and revisit. Finally, Airbnb hosts are mediator of local culture. In our research, a lexicon specific to our research topic (guest-host communication) was created by using topic extraction, Tf*Idf and named entity extraction techniques. The created lexicon can be used in other studies in this field. Furthermore, we conclude that using hosts' name in reviews by guest an important attribute of interaction. Findings from this study provides important managerial implications for hospitality industry and Airbnb hosts who attempt to interact with guest accurately. Thence the study suggests a communication should enclose diverse and accurate information, host should pay attention to be friendly and communicative, respond as quickly as possible.

KEYWORDS

Tourism; Airbnb; Host-Guest Interaction; Mexico City; Athens; Tokyo.

RESUMO

O estudo tem como objetivo examinar as avaliações de hóspedes com experiência com o Airbnb nas cidades de Atenas, Tóquio e Cidade do México, em termos de interação anfitrião-hóspede. Pretende-se avaliar sua satisfação, intensão de repetir e recomendar a experiência, devido a sua profundidade e amplitude da cordialidade do anfitrião. Adota-se uma abordagem interpretativa, com método misto. Ou seja, o estudo combina a técnica de extração de tópicos, empregando big data online, para avaliar temas e padrões emergentes. O artigo destaca, primeiramente, a sinceridade da comunicação em frases com o nome do host enfatizado. Por outro lado, a natureza responsiva e comunicativa do anfitrião melhora a simpatia ao longo do tempo, o que afeta a experiência, a satisfação, a recomendação e a revisita. Por fim,

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os anfitriões do Airbnb são vistos como intermediários da cultura local. Em nossa pesquisa, um léxico específico para nosso tópico de pesquisa [comunicação convidado-host] foi criado usando técnicas de extração de tópicos, Tf*Idf e extração de entidades nomeadas. O léxico criado pode ser utilizado em outros estudos na área. Além disso, concluímos que o uso do nome dos anfitriões nas avaliações dos hóspedes é um importante atributo de interação. Os achados deste estudo fornecem importantes implicações gerenciais para hotelaria e para os anfitriões do Airbnb que tentem interagir com os hóspedes com maior competência. Daí o estudo sugerir que a comunicação deve conter informações diversas e precisas, o anfitrião devendo ser amigável e comunicativo, respondendo o mais rápido possível às demandas do hóspede.

PALAVRAS-CHAVE

Turismo; Airbnb; Visitantes-Visitados; Cidade do Mexico; Atenas; Toquio.

INTRODUCTION

The sharing economy, which contributes to prevent of many social problems such as excessive consumption, pollution, and poverty (Jung et al., 2021) through common consumption (Belk, 2014), is based on sharing rather than owning (Botsman & Rogers, 2010; Tussyadiah, 2015). In this vein, renting excess products and services and trust in the user generated content owing to Web 2.0 are two important components (Belk, 2014). While individuals tend to use new technologies in the digitalizing world, socio-economic change continues by differentiating their ways of doing business. One of the areas where these changes are seen is the hospitality industry. As a successful platform Airbnb in sharing economy (Cao et al., 2022), meets the needs of social and economic change in society by bringing the host and guest together on the same network. The platform, which mediates the renting of surplus rooms and houses to those who seeks accommodation, was established in 2007.

As declared themselves hosts offer guests to experience the world in a more authentic, connected way, Airbnb brings together 4 million hosts with guests in more than 220 countries. Considering the latest data, hosts, who have earned \$150 billion since Airbnb was founded, have provided more than 1 billion overnight services (About us - Airbnb, 2022). In addition to being more affordable than traditional accommodation, the platform seems to offer guests an authentic experience. As indicated in a study conducted in Berlin reveals users' Airbnb preferences, the interaction between host and guest is as important as the economic factor (Stors & Kagermeier, 2015). While the quality of the interaction is important in terms of social value, the reciprocity of the interaction determines the depth of intimacy. Peer to peer

accommodation makes individuals feel at home, allows them to communicate with the host and their surroundings in sincerely.

Value creation in tourism mostly requires embracing the tourist and the service providers together in the destination as an integrated process (Prebensen, Chen & Uysal, 2018). This integration constitutes the basis of value creation, whereas the sincerity of the service provider has a key role. Moreover, sincerity can be increased by openness and reciprocity (Sthapit & Jiménez-Barreto, 2018). Host and guest can develop a sincere relationship by sharing what they have. As meeting the needs of those who want to experience the local life (Qiu et al., 2020) in a destination, lodging via Airbnb platform enables host and guest an intense social interaction.

Tourist is surrounded by the social environment during her/his visit to a destination. As tourist is away from home, the intensity and nature of her/his relationship with the environment changes, either accidentally or intentionally (Hjalager, 2004). Hereby the social environment she/he in, creates a social contact inevitably. In the context of tourism, the social contact between the tourist and the host is the most important of this contact. This contact has effects on mutual understanding, reducing prejudices and improving interpersonal relationships (Pettigrew, 1998; Kawakami et al., 2000; Binder et al., 2009; Kirillova, Lehto & Cai, 2015). According to Allport (1954), there are four situations occurring positive effects of social contact; equal group status; common goals; intergroup cooperation; and the support of authorities, law or customs. Since our research deals with the positive effects of social contact, it is assumed that the situations exist during the host-guest interaction in Airbnb stays.

Most studies in this area focuses on various motivation factors of using Airbnb (Lampinen, 2016; Yang & Ahn, 2016; Guttentag et al., 2018; So, Oh & Min, 2018; Moon et al., 2019) such as value of the price, enjoyment and household benefits. A study by Moon et al. (2019) on Airbnb users in the context of social penetration theory [SPT] examines the consequences of interaction between guests and hosts. According to the results of the study, guests perceive the overall interaction experience more positively than the hosts. On the other hand, when it comes to satisfaction and behavioral intention, it is seen that the guest and the host evaluate the concepts with different interaction factors. Researchers shed light on the mutual relationship between host and guest, but no study has been found that deals with the effect of sincerity in the relationship between the parties on recommendation and revisit intention. Additionally,

emerging literature is largely examining what motivates using Airbnb, but it has no target of social value of the interaction.

Our study deals with the developing relationship between host and guest in Airbnb platform. Findings based on the comments (Big Data) left on Airbnb by the guests who stayed through Airbnb platform. The reasons why guests prefer Airbnb platforms are discussed in terms of social value in the context of SPT. In this vein, we claim that the intimate relationship between host and guest affects experience, satisfaction, recommend, and revisit intention of the traveler. In this study, it is aimed to examine the reviews of guests who had Airbnb experience in cities [Mexico City, Athens, Tokyo] located in three different continents in terms of host-guest interaction. Finally, we intent to interpret experience, satisfaction, recommend and revisit intention phenomenon in terms of depth of sincerity.

Subsequent section review host-guest interaction and social penetration theory in literature. Next, the methodological approaches are presented, including the data collection, analysis and building a model. This is followed by the results and discussion of significant outcomes.

LITERATURE REVIEW

Host-guest interaction - The host-guest interaction, which is the basis of tourism encounter, can occur in every place where the tourist is. Among these are the houses opened their doors to tourists by the local people through Airbnb, one of the trends of recent years. While it is a known fact that the local people have been opened their doors of home to tourists for thousands of years, the opportunities of the developing technology make this work easier and strengthen communication and trust between guest and host. Owing to direct and intense long-term communication both before and during the stay, mutual trust is built. Besides, guests who stay on Airbnb have the opportunity to experience the local culture more closely (Guttentag, 2015).

Studies have been conducted on a wide range of topics, from destination image on tourist-local people, tourist-worker, guest-local people interaction (Liu & Tung, 2017; Stylidis, Woosnam & Tasci, 2021; Stylidis, 2022), intercultural sensitivity (Kirillova, Lehto & Cai, 2015), travel behavior and experience (Su & Wall, 2010) to crisis communication (Liu-Lastres & Cahyanto, 2021), however studies on interaction intensity and the outputs of developing sincerity are limited. Nevertheless, Moon et al. (2019) states that *encounter satisfaction, word-of-mouth intention, and continuous intention to use* as an outcome of the interaction. We investigate the

development process of the interaction, intensity of interaction, and outcomes of the sincerity between host and guest.

Communication between guest and host in tourism may take place in two ways; formal and informal. Formal communication often ends the conversation by answering only the question with short responses, so sincerity does not develop significantly. On the other hand, in informal communication answer is given in a way that includes different topics and humor, hereby will lead to the development of sincerity. Unlike the formal communication used in corporate businesses such as hotels or large accommodation facilities (Blue & Harun, 2003), it can be assumed that Airbnb hosts have a more informal communication with their guests. In this type of communication, the amount and intensity of what is shared between individuals enlarges in terms of depth and breadth. Sthapit and Jiménez-Barreto (2018) proposed two dimensions of the sharing in social relations; communion and distribution. Communion dimension implicates sharing such as interpersonal behaviors, feelings, and thoughts, while distribution dimension comprises resources such as materials [room, bicycle, furniture, etc.] or information. Among the most successful examples of the sharing economy (Cao et al., 2022), Airbnb is a platform that offers the opportunity to share in both dimensions between host-guest where informal communication is intense and leading to deep sincerity through interaction.

Tourists, who have bonding motivation with different cultures, can more easily achieve the purpose of experiencing the local culture directly via mutual communication with the Airbnb host. To this extent, the hosts' competence of conveying cultural experience will increase guest satisfaction, authentic and local experience. Studies are limited in measuring the competence and sincerity level in terms of Airbnb experience. Our research suggests that as the depth of the host-guest relationship increases, as a result, guest experience, satisfaction, recommend and revisit intention positively increase in the context of social penetration theory.

Social penetration theory - Social penetration theory assumes that as interpersonal relationships develop, there is progress towards shallow, insincere, and sincere levels. The theory is based on the principle of 'self-opening' and 'reciprocity' (Taylor, 1968). As people continue to interact and relate, they mutually gain a deeper understanding of each other's personalities. The words, body language and environmentally oriented behaviors are used in this process (Altman & Taylor, 1973). Reciprocal behaviors include exchange of information [attitudes, values, demographic and biographical information and personal data], mutual

expression of positive or negative emotions, and joint activities. As the amount and intensity of sharing between individuals increases, a more sincere relationship occurs, starting with superficial levels. The process may be faster in some cases and slower in others. The process of penetration for people is slower and more limited when they must build and maintain relationship with or who do not enable to end the relationship. In contrast, the penetration process with people who will never see again or who are less likely to see/communicate is more fluid and faster.

People develop relationships more quickly when they join to a foreign community of which they have no knowledge (Newcomb, 1978). Individuals with no knowledge of others tend to improve their relationships by activating the social exchange process (Cozby, 1972; Moon et al., 2019). During staying through Airbnb, various type of sharing appears between host and guest, thus the superficial relationship progresses towards sincerity over time as predicted in penetration theory. As we mentioned before there is an extensive literature on Airbnb in context of host-guest relationship. Despite some of the latest studies on this subject have focused on the relationship between self-disclosure and perceived trustworthiness (Ma et al., 2017) in Airbnb profiles, understanding tourists' social contact (Lin et al., 2019), and perceived security in Airbnb (Yang & Ahn, 2016) studies on various aspects of communication are quite limited. We attempt to reveal whether host sincerity make impact on guest's overall staying experience.

In addition to functional reasons [hosts are less bureaucratic, cooking space, practical overview in Airbnb, instant mailing with host, more flexible], subjects related to authenticity are also considered important in Airbnb using motivations. Stors and Kagermeier (2015) suggest that host-guest interaction in peer-to-peer accommodation fulfill travelers' authentic experience needs. Researchers stated that especially the leisure segment tourist wants to meet new people, cares obtaining personal information about local knowledge from them. Most of the guests receive information about the destination, and the host's personal recommendations on places to go/activities to do in the area.

Guests have some expectations regarding specific experiences at the destination. These expectations are at least as important as the economic factor, such as having direct contact with locals, learning from host about pubs, restaurants, shops, or neighborhood in general. By this way guests experience destination from the locals' perspective and thus they have authentic

experience. Eventually, at this point reciprocal communication gains importance, and the depth of interaction responds to the guest's expectations.

Furthermore, peer-to-peer and in a non-touristy area staying provides a uniquely authentic experience (Guttentag et al., 2018), so it is suitable for the guest who needs authenticity and local culture experience. Chen (2012) states that in a study on Couchsurfing, which has a sharing philosophy one step beyond Airbnb, *the platform offers a network for cultural interaction between host and guest*. Airbnb accommodation operated by non-business or private host is also a suitable choice for guests seeking cultural interaction. Taheri et. al. (2018) distinguishes host sincerity from authenticity and introduce host[locals] sincerity with two underlying dimensions: sincere social interaction and sincere emotional response. These dimensions can be valid for interactions occurred peer-to-peer accommodations as well. To the best of our knowledge, no studies have yet investigated the cultural aspects which represents authentic experience by host on Airbnb. Current study examines whether host sincerity make impact on guest's cultural experience.

Authenticity is a key concept for traveler who seek cultural experience. Meanwhile sincerity is the key factor in authenticity. In other words, it can be said that sincerity is important in authentic Airbnb interactions. Once, Taylor (2001) said authenticity's the philosophical cousin of sincerity. Individuals seek authentic experiences, especially when interacting with cultures that are unlike their own. Fulfilling authenticity is directly related to originality (Moeller & D'Ambrosio, 2019) and tradition (Salmond, 1983). Authenticity in tourism is related to originality, reality and uniqueness in terms of traditional culture (Reisinger & Steiner, 2006). Sincere cross-cultural encounters allow for a better understanding of local identities.

Local identities also ensure that local values are transferred to the visitor. This again creates a cultural and authentic experience. The sharing economy can mediate the guest to immerse local authenticity by creating sincere cultural experiences. There are some research on host sincerity in context of tourist environmentally responsible behavior (Li, Liu & Wei, 2021), volunteer tourism (Prince, 2017), perceived service provider sincerity on consumers' emotional state (Gountas et al., 2011) however literature overlooked the research concerning host-guest sincerity in the sense of Airbnb. Our study will explore the relationship among host-guest interaction, sincerity, cultural and authentic experience. All this aside, we determined some research questions in context of private Airbnb host accommodation as follows: How sincerity

of the communication between host and guest affects experience, satisfaction, recommend and revisit intention? How does the guest experience differ among three cities in cultural context?

METHODOLOGY

We adopt interpretivism approach in our study, considering allowing a deeper insight into reality by interpreting guests' reviews. In this study, there are six steps to investigate hosts-guest interaction and sincerity of the communication. The key steps of our study can be listed as follows; mining Airbnb case data, pre-processing the data, topic extraction, naming entity extraction, constructing a lexicon, and clustering. We employed guest review for private hosts in three city centers [Mexico City, Athens, Tokyo] from three different continents by triangulation to examine in terms of host-guest communication.

Data collection - We employed online guest reviews as dataset, which is open access on the Airbnb platform publicly. Airbnb implements an open data policy on its website [insideairbnb.com/get-the-data.html] to support research and develop the platform. As Kozinets and Gretzel (2022, p. 151) points out, downloading existing posts certainly does not qualify as human subject research, whilst consent is required only where interaction or interference takes place (Hookway, 2008). Dataset was obtained from Inside Airbnb website with a total of 122,759 reviews (Insideairbnb, 2022). The dataset distribution is as per city centers follows; Athens (42,620), Mexico City (42081), Tokyo (38058). Guest comments in English language for the years 2019-2020-2021 were utilized for each city center.

The reason for choosing these three city centers in our research was determined as follows:

- a) The Airbnb platform provides reservation services to non-business or private host and corporate hotel businesses. However, since our research focused on the private host and guest relationship, corporate types of accommodation were not included. Therefore, using the Airbnb search engine and tools, the city centers with the highest number of private hosts for three different continents were searched. According to Airbnb search results, more than 300 houses, 64 hotels and 122 boutique hotels were listed for Mexico City. Next search results for Athens, more than 300 houses, 180 hotels and 92 boutique hotels were listed. Finally, Tokyo search results, more than 300 houses, more than 300 hotels and 200 boutique hotels were in service. Because research engine by supported Airbnb doesn't provide exact number more than 300 properties, we're not able to give details over 300 listings. That is we

found out that there were more private house owner suppliers in these three city centers compared to other city centers which available dataset in Airbnb Inside.

b) Another reason for choosing Athens, Mexico City and Tokyo city centers in the data set is that they are located on three different continents and represent three different cultures. In the research findings, we also assumed to reveal the intercultural differences in host-guest relations. In addition, since our research based on text mining will lead to valid results with large amounts of data (Mukhtar, Khan & Chiragh, 2018), city centers with insufficient guest comments were not included in dataset. Table 1 presents the guest review by numbers in three different cities.

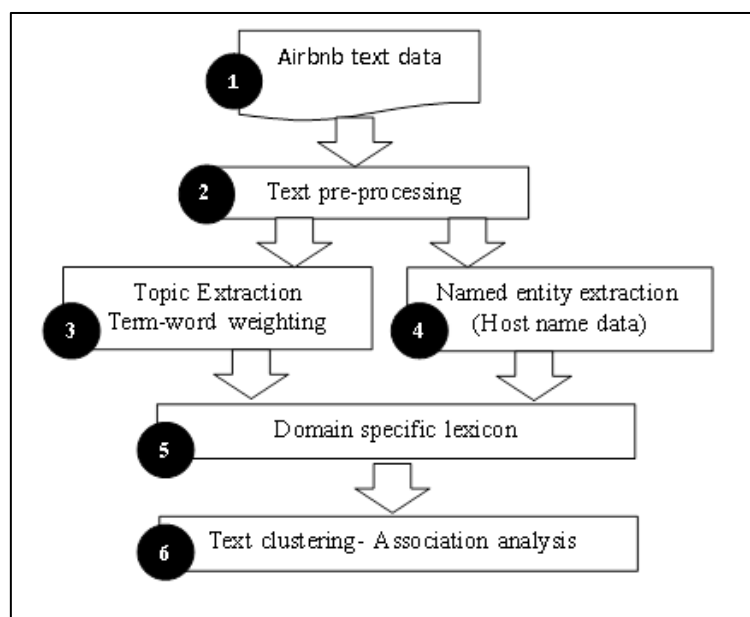
Table 1. Airbnb Guest Reviews

Destination	No. Review
Athens	42620
Mexico City	42081
Tokyo	38058
Total	122.759

634

Model Building and Analysis - The dataset obtained during the data collection phase was analyzed through Wordstat Software using text mining techniques. Figure 1 presents the six-step research model. The model and application stages are explained step by step below.

Figure 1. Research model



The basic text mining process begins with the collection of a textual dataset. Guest reviews in English language reflecting of Airbnb experiences was collected from the website. Reviews for each city were put together using Microsoft Excel Software. The integrated dataset contains 122,759 cases. [Step 1]

Text preprocessing was applied to the collected textual dataset. In preprocessing step, text is separated into words and expressions with natural language support. Sentence elements are identified and then reduced to different forms of expressions around word stems [stemming] and original forms [lemmatization]. Words (such as and, or) that appear in the reviews but insignificant for the sentence are removed. [Step 2]

Topic extraction reveals hidden themes in the text dataset using natural language processing and statistical methods. In the text set, it is tried to determine whether the words co-occurring in the sections where topic extraction is identified to create a topic or not. Words or phrases are clustered according to their distance from each other and their probability of occurrence. Term weighting refers to the process of calculating and assigning the weights of each word in the document according to the degree of importance (Trstenjak, Mikac & Donko, 2014). In term frequency [term frequency], inverse document frequency [TF*IDF] technique was used to calculate term weights. According to this approach, the weight of a term is directly proportional to the frequency of occurrence in the relevant document and inversely proportional to the frequency of occurrence in the document set (Akbiyık, 2019). Therefore, a term or word with a high TF*IDF value means that it has been included in a small number of documents. This strengthens the distinctive feature of the related term (Manning, Raghavan & Schütze, 2010). A lexicon which is specific to the research area was constructed to be used in Step 5. This lexicon contains topics listed in order of importance and the terms and words forming these topics. [Step 3]

Named entity extraction is a text mining process that provides automatic determination of special entity names from unstructured text sets (Miner et al., 2012, p.921). Since our research focused on host-guest communication, host names were determined using the named entity extraction technique. Identified host names were added in the domain-specific lexicon for use in step 5. A total of 304 host names were determined by the named entity extraction method. Table 2 shows examples of identified host names, number of mentions in the comments and cities. [Step-4]

Table II. Examples of host names

Host Name	Number of Mentioned in Comments	Cities
Maria	670	Mexico City
Nikos	629	Athens
Masami	349	Tokyo
Carlos	270	Mexico City
Dimitris	224	Athens
Keiko	160	Tokyo

Lexicon-based text mining studies are generally used to determine positive and negative sentiments in text. Sentiment lexicons [SentiWordNet, Wordnet, etc.] in literature are general dictionaries. Since words or terms may not mean the same thing in two different topics and/or contexts, domain-specific lexicons have been verified to outperform general lexicons (Bagherzadeh et al., 2021). In addition, lexicon-based approaches are transparent (Mehraliyev, Chan and Kirilenko, 2022). Thus, a domain-specific lexicon for host-guest communication was constructed by using the subject headings, terms, and words we obtained with the topic extraction applied in step 3 of our research. In addition, to enrich this constructed lexicon, expressions related to communication in the dataset were queried and included in the lexicon. In addition, to enrich this constructed lexicon, synonymous terms/words related to communication and other categories in the dataset were queried and included in the lexicon. [Step 5]

Host-guest lexicon obtained in step 5 was applied to the data set using the Inverse frequency analysis. Hereby, the data set was clustered using the topics in the lexicon and the word and term weights that determine these. Finally, we conducted cluster analysis the text data. Cluster analysis reveals the words that have potential for co-occurrence or occurrence in similar settings among keywords in the dataset. Cluster analysis is one of the data summarization techniques in text mining (Manning, Raghavan and Schütze, 2010). By using the terms used in the lexicon and the distances between the words, a connection and proximity graph was created in accordance to the topics (Aggarwal and Zhai, 2012). Thus, the graphics created to explain the relations between the guest host were evaluated in the findings section. [Step 6]

RESULTS

To summarize, in our study firstly, we conducted two basic analyses. Topic extraction was made to reveal the thematic structure of the dataset and to construct a special-domain lexicon about host-guest communication. Afterwards, named entity extraction was applied to identify the names of individual hosts in the dataset. Table 3 shows the host-guest lexicon constructed by using the words and terms formed as a result of both analyzes.

Table III. Host – Guest interaction lexicon

	Frequency	% Shown	No. Cases	Tf • Idf
Host name*	16799	42,60%	13272	616,4
Host helpful and responsive***	4363	11,06%	8544	994,6
Quickly responded*	2862	7,26%	6975	904,6
Recommend highly**	2614	6,63%	4716	1270,5
Communicative*	2134	5,41%	1962	1850,0
Feel at home***	1502	3,81%	2700	1093,9
Communication excellent*	1496	3,79%	10945	180,1
Revisit**	1325	3,36%	1490	1307,0
Lovely neighborhood****	1282	3,25%	5126	576,7
Easy to access***	959	2,43%	3124	637,7
Culture*	872	2,21%	739	1125,7
Good price***	843	2,14%	2415	654,8
C-out/C-in late and early***	796	2,02%	3510	489,0
Safe felt***	655	1,66%	4616	324,5
Stay enjoyed***	440	1,12%	11123	49,9
Absolutely loved***	340	0,86%	4446	174,0
Attractions and tourist****	150	0,38%	938	178,1
(*) Host – Guest interaction; (**) Guest intends ; (***) Satisfaction; (****) Traveler related and others				

Once frequency analysis made according to the lexicon constructed by the topic extraction method, the hosts' names appear in the first rank, indicating that the personal names of the hosts are used at the highest frequency (16,799). As can be seen in Table 3, in 13,272 cases [guest reviews], the host's name was used. This accounts for 42.60% of all cases. The high use of host's names in the reviews can be considered to reflect the sincerity of communication between host-guest.

One of the distinct results is that 11.06% of all cases related to the 'hosts' name' was the 'Host helpful and responsive' topic. The guests stated that they found their hosts were helpful and responsive when describing them. Following, 'quickly responded' (7.26%), 'communicative' (5.41%) and 'communication excellent' (5.41%) are other categories that describe interaction between hosts-guests. These three topics indicate that the reciprocal communication between hosts and guests develops in a positive way during the stay. Since the focus of our work is the interaction between host and guest, we continue to examine in the section below.

At this point, the fact that the number of cases, frequency values and category importance values [TF*IDF] are quite high in the 'recommend highly' (6.63%) and 'revisit' (3.36%) categories indicate that the behavioral intentions of the guests are positive. Other categories describe the experiences of the guests. Categories of 'feel at home' (3.81%), 'safe felt' (1.66%) and 'stay enjoyed' (1.12%) indicate guests' satisfaction for Airbnb stay. Eventually we define traveler related and other dimension to refer attributes unrelated with Airbnb stay, but overall travel.

Host-Guest Communication - In our research, we first attempted to determine how the communication between hosts and guests evolved. At this stage, we performed the association analysis between the host names and communication-related categories using the lexicon we have constructed. Association analysis reveals co-occurrences of categories, words and terms clustered by lexicon. Association analysis was applied at the sentence level. Thus, it has been determined to what extent the communication categories and host names are together in the same sentence. Appearance of host names in review sentences indicates the breadth and depth of the sincerity of the communication.

As a matter of fact, the following examples were seen in the queries made while constructing the lexicon. For instance, one guest's sentence: "Carlos was the perfect host, extremely communicative and helpful" (Mexico City-case no: 8859). This sample shows the breadth and depth of communication between host and guest. The Jaccard's Index used in the analysis demonstrates the strength of co-occurrences (Verma & Aggarwal, 2020; Péladeau, 2021). Originally developed by Jaccard (1901), the Jaccard index is a measure used to analyze the similarity [or difference] between two data samples. For any two finite sets, A and B, the Jaccard index is defined as the ratio of the intersection size to the union [IoU] as shown in Equation 1.

$$\text{Equation 1: } J(A, B) = \frac{|A \cap B|}{|A \cup B|}$$

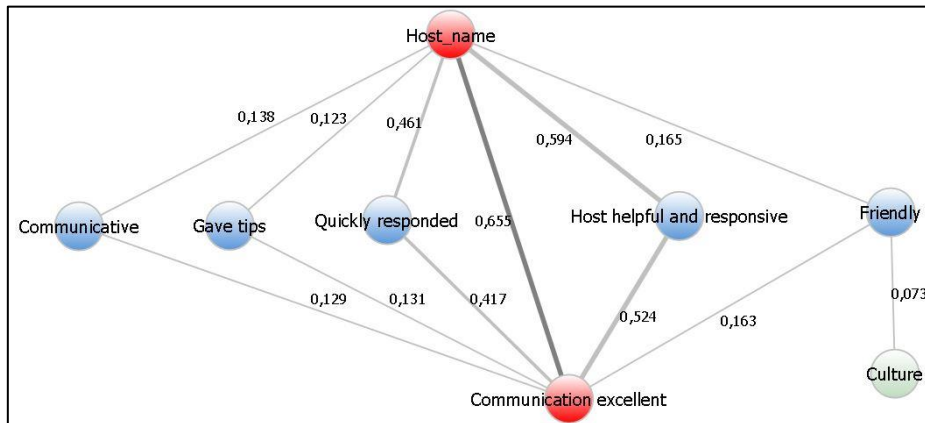
Its value is between 0 and 1, i.e. $0 \leq J(A, B) \leq 1$. The higher value of $J(A, B)$ shows more co-occurrence between sample sets. It is quite easy and clear to interpret. Table 4 shows the results of the association analysis.

Table IV. Host name – communication association analysis

Target	Keyword/Term	Co-Occurrence	Jaccard's Coefficient
Host_name	Communication excellent	9214	0,655
Host_name	Host helpful and responsive	8162	0,594
Host_name	Quickly responded	6394	0,461
Host_name	Friendly	2226	0,165
Host_name	Communicative	1850	0,138
Host_name	Gave tips	1647	0,123
Host_name	Culture	626	0,047

Link visualization from association analysis shows 9214 co-occurrences were found between the 'host name' and 'communication excellent' categories with the highest value (0.655). This indicates that 65% of the sentences containing the names of the hosts have excellent reciprocal communication. 'Host helpful and responsive' category with its highest value (0.524) demonstrates the perfect communication between host and guest. The helpful and responsive nature of the host emphasizes the perfection of communication with the hosts, that is, indicates guest satisfaction. Many guests express their perception of host's responsivity. For instance, one guest's sentence: "Victor was helpful and responsive when we had questions. Would definitely stay here again next time" (Mexico City-Case no: 1483). Link visualization from association analysis presented in Figure 2.

Figure 2. Communication between hosts and guests



Another co-occurrence is between the 'host name' and 'quickly responded' categories, while guests describe excellent communication with their hosts, with a value of 0.461 [Fig. 2]. This refers to the correspondence in which guest and host first communicate through the Airbnb platform. The guests asked host about the room they will stay, check in transactions, payments, and destination, and it seems they got a quick response. Whilst duration of confirmation times is getting longer in hotels, that can be said this is an advantage for Airbnb users. Most of the guests perceived this situation as an excellent communication. For instance, one guest's sentence: "Eddie was very kind and their response on the Airbnb website by chat was very quickly" (Tokyo- Case no: 6716). This stage is the first contact between the guest and host, that is, the beginning of communication.

As we noted already within the framework of the reciprocity principle of social penetration theory, guests try to get to know host. At this point communication between host and guest is superficial yet. Whereas penetration process is more fluid and faster within individuals who are unlikely to see or communicate with again (Taylor, 1968). The guest herein tries to get to know the host and collects information about the accommodation and its surroundings even be superficial. Many guests mention hosts as a communicative person and see them as very quick to respond, pointing to the beginning of interaction. For instance, one guest's sentence "Hector responds very quickly to messages or anything you may need" (Mexico City- Case no: 1201).

At this stage, communication is superficial yet functional. In a study on hotels, it was found that functional communication is one of the three elements that constitute hospitality for front-line staff (Blue & Harun, 2003). Accordingly, receptionists being able to carry out regular processes, but also must know what facilities available and how to gain Access to them and should have good knowledge both hotel and local area. At this stage, the information obtained by guests and hosts will have reciprocal effect on their attitudes and behaviors in the future processes.

Another co-occurrence is between the 'host name' and 'friendly' categories with a value of 0.165, while guests describe their excellent communication with their hosts. Thereupon it is understood that mutual communication evolves to the level of friendship. The co-occurrence between the 'host name' category and the 'gave tips' and 'communicative' categories defines the development of friendship between hosts and guests. The hosts gave important tips to the guests before and during their stay. For instance, some guests' sentences on tips they got from host before and during their trip: "George was very helpful and gave us lots of tips of places to

see” (Athens-12711). “Taturo is very friendly and gave me helpful tips throughout my trip” (Tokyo -10165).

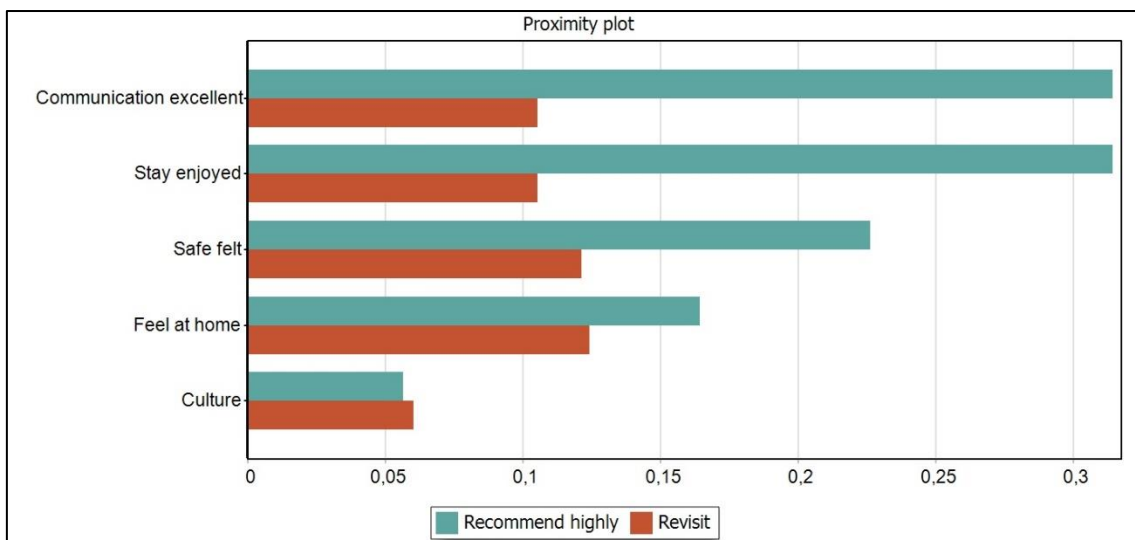
In the association analysis, ‘communicative’ category indicates that the reciprocal communication between hosts and guests deepens and turns into friendship. When describing their hosts, guests express that they are sincere and willing to communicate. The mutual development of this sincere communication is explained by the connection between the ‘communication excellent’ category and the ‘communicative’ category. For instance, one guest’s sentence: “Yoshi was an extremely helpful, accommodating and communicative host that was ready to assist us with anything we needed within moments” (Tokyo-8936)

Through the friendly communication of the host, the guest had the opportunity to experience the local culture. This explains the connection between the ‘friendly’ category and the ‘culture’ category.

Guests’ Satisfaction and Behavioral Intentions - Above we analyzed the communication between host and guest. As a result of the analysis, it has been revealed that communication has a positive effect on guest satisfaction. Currently, the effects of communication and satisfaction on behavioral intentions will be explained by visualizing with the proximity plot. The proximity plot provides a graphical display of one or more target categories by measuring the distance between all other categories. Proximity plot describing ‘recommended highly’ and ‘revisit’ target categories using Jaccard's index is presented in Figure 3.

641

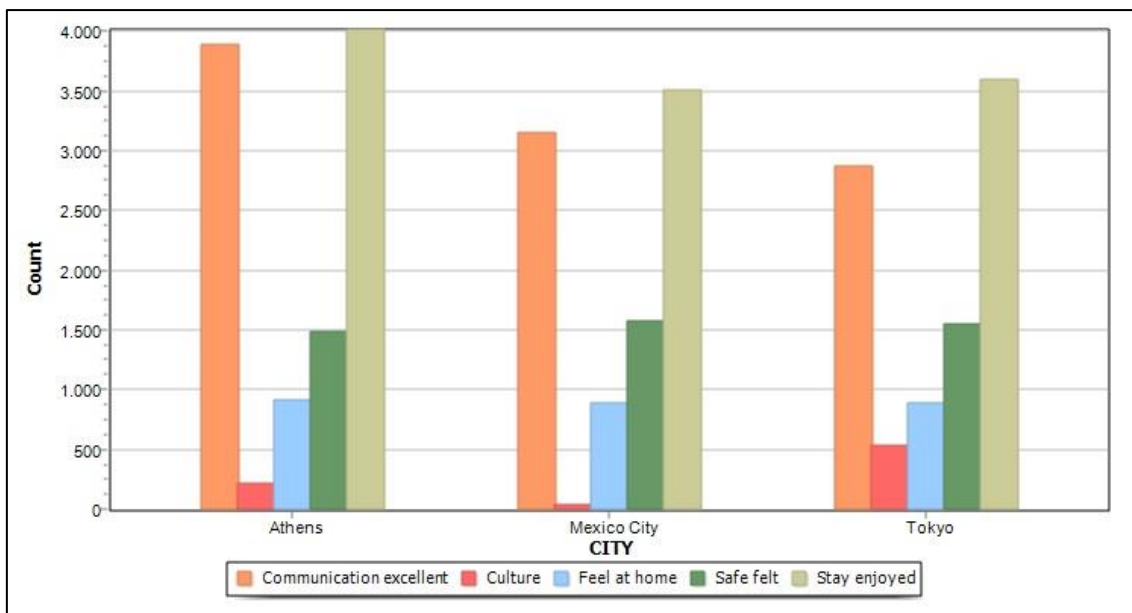
Figure 3. Behavioral intentions of guests



As indicated in Figure 3, the 'communication excellent' category is the most important category in the behavioral intentions of the guests regarding their accommodation experience. It has been observed that when guests describe their communication with the hosts, they intend to recommend it to others more than they revisit. The guests expressed their satisfaction with their stay in the categories of 'stay enjoyed', 'safe felt' and 'feel at home'. It has been observed that through satisfaction's instrumentality, they intend to recommend to others more than they revisit.

The behavioral intentions of the guests in terms of cultural interaction differed according to their communication and accommodation satisfaction as seen in Figure 3. However, their intention to revisit in the 'culture' category was higher than their intention to recommend to others. This may mean that guests want to maintain the cultural interaction with their hosts. In addition, link analysis shows the connection of categories regarding host-guest communication (Fig. 2), it was revealed that there was a relation between 'culture' and 'friendly' categories. Finally, we compared the three cities according to the occurrence of cases in communication, accommodation satisfaction (feel at home, safe felt, stay enjoyed) and culture categories.

Figure 4. Communication-satisfaction-culture categories



As given in Figure 4, in categories of 'communication excellent' and 'stay enjoyed', Athens is the city with the highest occurrence of cases. Communication and accommodation satisfaction rates for Mexico City and Tokyo are at almost the same rate. Tokyo differed from other cities in the

'culture' category. For instance, one guest sentence: "If you want to learn about Japanese culture, Kenichi will teach you" (Tokyo-1458)

DISCUSSION

Our study dealt with the communication within context of SPT and revealed important findings. Social penetration theory assumes that as interpersonal relationships develop, there is a progression towards shallow, insincere, and sincere levels. Considering the findings of the study in terms of host-guest communication, the first communication started with the correspondence made at the reservation stage. At this stage, the guests asked the host about the room they will stay, check-in transactions, payments, and overall destination, hereby receives a quick response. In addition, the tips given by the hosts about the accommodation, neighborhood and destination during the visit are important to the guest. According to the findings hosts meet guests' expectations in this regard. At this point, it can be said that the hosts take on the role of a guide as an intermediary that provides information about local places and local culture.

In our research, although service-oriented communication indicators between host and guest, 'quick responsive' and 'gave tips' topics highly define perfect communication, 'helpful and responsive host' is less than the sum of the 'communicative' and 'friendly' topics ratios. This indicates that the excellent communication between host and guest is highly sincere, honest, and open-hearted. This shows that the communication deepens mutually during the stays and eventually turns into friendship. In addition, it has been seen that the emerging friendship has an important role in cultural interaction.

As we mentioned, another indicator of the sincerity between the host and guest is the high use of host names in guest reviews. Literature shows guests who have experienced Airbnb are leaning to write in their reviews with host's names (Kwok, Tang & Yu, 2020) especially in a positive way (Ju et al., 2019). The study conducted Belarmino et al. (2019) shows: "Airbnb users tend to use the names of hosts in their reviews (although they often have first names), while hotel guests rarely report the names of hotel staff in their reviews of their stays". Additionally, Cheng and Jin (2019) states that appearing host's name in reviews may demonstrate a personal touch in communication.

When our research findings are considered in terms of the depth of communication between host and guest (Sthapit & Jiménez-Barreto, 2018; Lin et al., 2019), interaction may reduce cultural distances between parties. Previous studies have shown similar results in line with our research (Fan et al., 2017). Another outcome of our research reveals behavioral intentions of guest have been affected by host-guest communication, accommodation satisfaction and cultural dimensions. According to our findings, communication and accommodation satisfaction are more significant than recommendation and revisit intentions. In the cultural dimension, it was seen that revisit dimension was more significant than recommend to others dimension. This situation reveals the intention of the guests to revisit to get to know better the cultural environment they have experienced. In other words, guests would like to experience local culture more than they had during their current stay.

Our study findings showed host-guest interaction experience and cultural experience affects behavioral intentions positively. This research finding correspond with those of earlier studies conducted by Wiles and Crawford (2017), Cheng and Jin (2019), Lin et al (2019). In fact, Lin et al. argue that the effects of the depth of cultural experience enables guest to consider migrating to destination in the future. In this respect, our study also supports the positive results of revisiting intention through cultural experience.

In our research, we compared guest reviews for 3 cities representing three different cultures in terms of communication, accommodation satisfaction and culture. Considering the findings, Athens differed positively in terms of communication and accommodation satisfaction, while Mexico City and Tokyo showed almost the same results. The fact that there is no significant difference in terms of communication and accommodation satisfaction in three different cities, in other words that can be concluded Airbnb hosts care about communication quality and accommodation satisfaction. A similar pattern of results was found by Wiles and Crawford (2017), Cheng and Jin (2019), Lin et al. (2019). The fact that there is more cultural interaction in Tokyo than other cities, that means cultural transfer has more intense role in Tokyo. It can be said that guest had unique experience since Japanese traditional culture is unique and has a distinct character. It can be said that guest have intense and memorable cultural experience in Tokyo.

CONCLUSION

Contemporary in the hospitality industry having important role the Airbnb platform has led to significant changes in the way of accommodation of new tourist profiles. It is seen that the communication between host and guest is effective in this change regards to hospitality experience. In this new accommodation form created through Airbnb, the communication between the host and the guest can be interpreted as a newly established friendship between two individuals. As conclusion it has been seen that there is a perfect reciprocal communication between the host-guest through the Airbnb platform. At the end of the staying, apart from all these, friendships are formed, and interaction positively affects the satisfaction of the guests. In addition, the satisfaction of the guests positively reflected on their behavioral intentions. Furthermore, Airbnb is an instrument for transfer of local culture to the traveler. Guests who seek authentic and cultural experience may meet their needs via Airbnb. This study confined to three cities. Moreover, the study didn't employ online reviews for traditional hotel businesses. Therefore, it cannot be claimed the sincerity of communication to be better on Airbnb than traditional hospitality. Hence, future research may conduct studies comparing traditional hotel businesses with both Airbnb private hosts or business hosts in the platform.

645

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